

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) In a variable bandwidth wireless communication system ~~capable of communicating under multiple different communication schemes that each have a different bandwidth, a process performed by a base station of generating an information bearing signal for wireless transmission, the process comprising:~~

~~utilizing by the base station a specified number of subcarriers to construct a variable bandwidth wireless channel with a particular bandwidth;~~

~~utilizing by the base station groups of subcarriers, wherein each group includes a plurality subchannels that include groups of subcarriers;~~

~~providing a fixed time domain signal structure, including symbol length;~~

~~maintaining a substantially constant ratio between a sampling frequency and a size of FFT (Fast Fourier Transform) and IFFT (Inverse Fast Fourier Transform) or a fixed spacing between adjacent subcarriers;~~

~~adding or subtracting, by the base station, groups of some of the subcarriers or subchannels to scale the variable bandwidth wireless channel and achieve a required an operating channel bandwidth; and~~

~~wherein a core-band, including a plurality of subcarrier groups, substantially centered at an operating center frequency of the different communication schemes, is utilized for utilized by the base station as a broadcast channel carrying radio control and operation signaling, where the core-band is substantially not wider than a smallest possible operating channel bandwidth of the system.~~

2. (Currently Amended) The process of claim 1, wherein the wireless information bearing signal is:

~~transmitted by a mobile station in a multi-cell, multi-base station environment;~~

~~a multi-carrier code division multiple access (MC CDMA) or an orthogonal frequency division multiple access (OFDMA) signal; and is~~

utilized ~~with in~~ a downlink, uplink, or both, where with a duplexing technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD).

3-5. (Canceled)

6. (Currently Amended) In a variable bandwidth communication network of base stations and mobile stations, wherein a signal ~~utilizes subchannels that include groups—comprises groups of subcarriers and each group includes a plurality of~~ subcarriers, a method ~~of adjusting a mobile station bandwidth to an operating bandwidth of a base station, the method performed by a mobile station comprising:~~

~~maintaining a fixed time domain signal structure;~~

~~maintaining a substantially constant ratio between a sampling frequency and a size of FFT (Fast Fourier Transform) fixed spacing between adjacent subcarriers;~~

~~adjusting a number of groups of subcarriers or subchannels to scale a channel and attain a desired an operational bandwidth;~~

~~utilizing a core-band, substantially centered at an operating center frequency to carry synchronization information, for radio control and operation signaling, wherein the core-band is not wider narrower than or equal to a smallest possible operating channel bandwidth of the network; and~~

~~a configuration wherein the mobile station, upon entering an area, scans scanning spectral bands of different center frequencies and detecting the synchronization information in the core-band of the operating center frequency and upon detecting a signal in a spectral band of a center frequency;~~

~~determines the operating channel bandwidth by a center frequency to bandwidth mapping; or~~

~~decodes the bandwidth information decoding a broadcast channel carrying~~
radio control and operation signalling provided by a base station to
~~the mobile station via downlink signaling the core band.~~

7. (Canceled)

8. (Currently Amended) The method of claim 6, wherein the signal is ~~a multi-carrier code division multiple access (MC-CDMA) or an~~ orthogonal frequency division multiple access (OFDMA) signal, and the signal is utilized ~~with-in a downlink, uplink, or both, where~~ with a duplexing technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD).

9. (Canceled)

10. (Canceled)

11. (Currently Amended) In a variable bandwidth communication network wherein a communication signal utilizes ~~subchannels that are composed of groups of~~ subcarriers, wherein each group comprises a plurality of subcarriers, and a mobile transceiver with station has an adaptable bandwidth, the ~~transceiver mobile station~~ comprising:

an analog-to-digital converter for signal sampling;

a Fast Fourier Transform and Inverse Fast Fourier Transform processor (FFT/IFFT), wherein ~~a substantially constant ratio is maintained between a~~ sampling frequency and a size of the FFT/IFFT fixed spacing between adjacent subcarriers is maintained;

a scanner for scanning spectral bands of specified center frequencies, ~~upon entering an area, to find a signal and to determine an operating channel~~ bandwidth;

a facility for sustaining decoding a broadcast channel including radio control and operation signalling associated with the area in a core-band for pertinent communications including a plurality of groups, wherein the core-band is not wider than a smallest possible operating channel bandwidth of the network; and

a facility for adding to the subcarriers groups to widen the channel bandwidth for remainder of the communication.

12. (Canceled)

13. (Currently Amended) The transceiver mobile station of claim 11, wherein the communication signal is a multi-carrier code division multiple access (MC-CDMA) or an orthogonal frequency division multiple access (OFDMA) signal, and the communication signal is utilized with-in a downlink, uplink, or both, where with a duplexing technique that is either Time Division Duplexing (TDD) or Frequency Division Duplexing (FDD).

14-21. (Canceled)

22. (New) A cellular base station comprising:

circuitry configured to transmit a broadcast channel in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups, wherein each subcarrier group includes a plurality of subcarriers; and

circuitry configured to transmit control and data channels using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band.

23. (New) The cellular base station of claim 22 wherein the circuitry configured to transmit the broadcast channel is further configured to transmit radio network information in the broadcast channel.

24. (New) The cellular base station of claim 22 further comprising circuitry configured to transmit synchronization information in the core-band.

25. (New) The cellular base station of claim 22 wherein the circuitry configured to transmit the broadcast channel is further configured to transmit in a time slot format.

26. (New) The cellular base station of claim 22 wherein the base station operates in an OFDMA frequency division duplex (FDD) or time division duplex (TDD) mode.

27. (New) A cellular mobile station comprising:
circuitry configured to receive synchronization information from a base station in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups where each subcarrier group includes a plurality of subcarriers;
circuitry configured to synchronize with the base station using the received synchronization information; and
circuitry configured to receive control and data channels using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band.

28. (New) The cellular mobile station of claim 27 wherein the circuitry configured to receive the synchronization information from the base station in the core-

band is further configured to receive the cell identification information from the base station in the core-band.

29. (New) The cellular mobile station of claim 27 further comprising circuitry configured to receive a broadcast channel in the core-band.

30. (New) The cellular mobile station of claim 29 wherein the broadcast channel carries radio network information.

31. (New) The cellular mobile station of claim 27 further comprising circuitry configured to transmit a preamble after synchronizing with the base station.

32. (New) A variable bandwidth communication method comprising:
transmitting a broadcast channel by a cellular base station in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups, wherein each subcarrier group includes a plurality of subcarriers; and
transmitting control and data channels by the cellular base station using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band.

33. (New) The method of claim 32 wherein the broadcast channel carries radio network information.

34. (New) The method of claim 32 further comprising transmitting by the base station synchronization information in the core-band.

35. (New) The method of claim 32 wherein the transmissions are in a time slot format.

36. (New) The method of claim 32 wherein the cellular base station operates in an OFDMA frequency division duplex (FDD) or time division duplex (TDD) mode.

37. (New) A variable bandwidth communication method comprising:
receiving synchronization information by a cellular mobile station from a base station in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of subcarrier groups where each subcarrier group includes a plurality of subcarriers;
synchronizing the cellular mobile station with the base station using the received synchronization information; and
receiving control and data channels by the cellular mobile station using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band.

38. (New) The method of claim 37 wherein the receiving of the synchronization information by the cellular mobile station from the base station in the core-band includes receiving cell identification information from the base station in the core-band.

39. (New) The method of claim 37 further comprising receiving by the cellular mobile station a broadcast channel in the core-band.

40. (New) The method of claim 39 wherein the broadcast channel carries radio network information.

41. (New) The method of claim 37 further comprising transmitting by the cellular mobile station a preamble after synchronizing with the base station.